

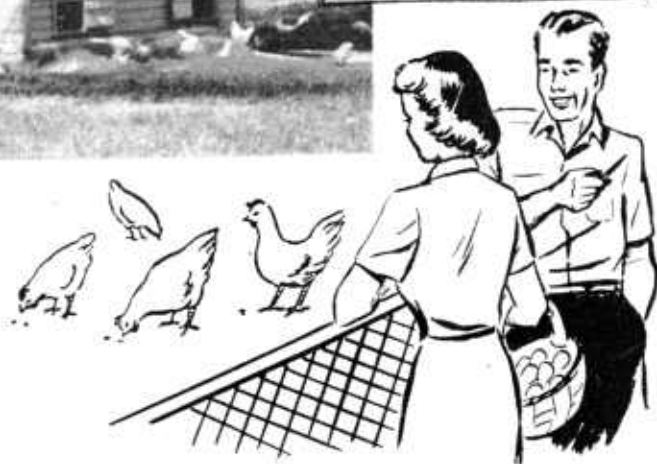
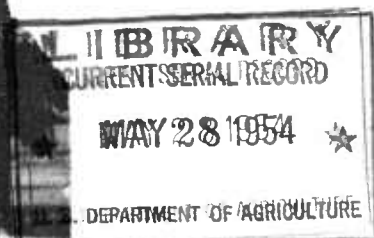
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# Poultry Keeping

IN  
BACKYARDS



Farmers' Bulletin No. 1508

U. S. DEPARTMENT OF AGRICULTURE

**P**OULTRY can be kept in the backyards of many suburban and town homes because the birds are relatively small and adaptable to a variety of conditions.

A backyard poultry flock supplies the family with fresh eggs and some meat, both desirable foods of animal origin. Some families that have deep-freeze equipment find it practical and economical to raise a flock or two of broilers each season, killing and dressing them when they have reached the most desirable weight, and storing them in the deep freeze. This, housewives find, is more convenient than killing one or two birds at a time through the short season when broilers are in prime condition.

A small flock of chickens will consume wastes from the kitchen and the garden. These help to reduce the cost for poultry feed.

This bulletin discusses such subjects as suitable breeds, houses, methods of feeding, and sanitary requirements. For information on other branches of the poultry industry, write the United States Department of Agriculture or your State agricultural experiment station.

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# Poultry Keeping in Backyards

*By animal husbandry specialists of the Animal and Poultry Husbandry Research Branch, Agricultural Research Service<sup>1</sup>*

## ADVANTAGES OF KEEPING A BACKYARD POULTRY FLOCK

**T**HE BACKYARD FLOCK is kept primarily for egg production. It should provide the table with fresh eggs during most of the year, and at certain seasons, furnish chickens to eat. A small home flock makes an interesting and desirable hobby, especially for those who work indoors. It involves little cash outlay, and the home makes ready use of the products. Many backyard poultry keepers find selling some surplus eggs and chickens a good source of extra income.

Droppings and litter from the poultry house provide desirable fertilizer for the garden and lawn.

Chickens can very well be kept in villages and in the suburbs of towns and small cities. Many cities and large towns, however, have ordinances against poultry keeping. Hens kept only for egg production need not have a male bird in the flock. The morning crowing of roosters can be most objectionable, especially in thickly settled areas.

## SELECTION OF STOCK

You can make a start in backyard poultry keeping by buying hatchery eggs, day-old chicks, started chicks, or partly grown or well-developed pullets. Ordinarily it is not convenient for the city dweller to hatch eggs. If you wish to start with 1-day-old chicks, get them early in the year, preferably in March or April. Late-hatched chicks rarely, if ever, do so well as those hatched early. Buy only from a reliable hatchery known to keep healthy birds bred for high egg production. From 8 to 15 birds should provide the average family with a liberal supply of eggs for most of the year. When it is practical to sell eggs to neighbors, 25 or more hens may be kept to advantage.

Common breeds of chickens suitable for a backyard flock kept primarily for meat and egg production include Plymouth Rocks (fig. 1), Rhode Island Reds (fig. 2),

Wyandottes (fig. 3), New Hampshires (fig. 4), and Leghorns (fig.



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FIGURE 1.—A Barred Plymouth Rock hen. The Plymouth Rock is a popular general-purpose breed.

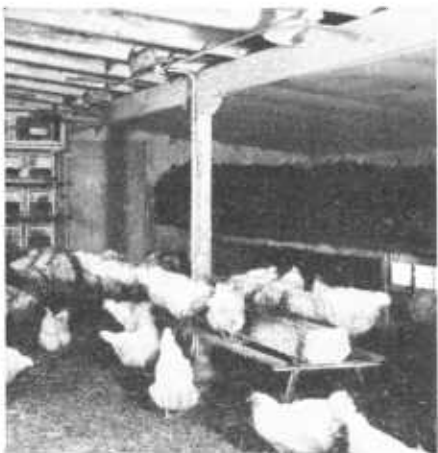
<sup>1</sup> A. R. Lee, author of the former edition of this bulletin, retired in 1952.



19423-B

FIGURE 2.—Single-Comb Rhode Island Red female. This is one of the most popular general-purpose breeds for egg and meat production.

5), although there are many other breeds and crosses that are kept. The first four breeds are popularly known as general-purpose breeds. If bred for high egg production, they lay well, and they also make good table poultry. Their eggs are brown. The Leghorn produces white eggs, and although it is a



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FIGURE 3.—A flock of White Wyandottes in a laying house.

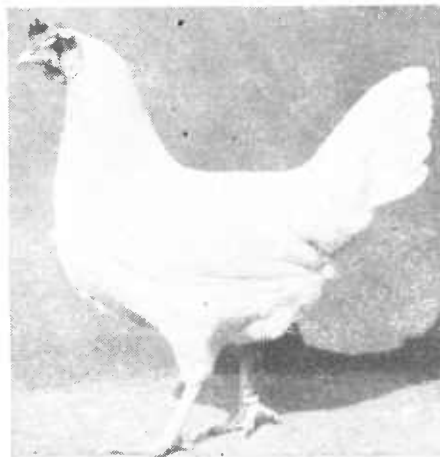


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FIGURE 4.—A New Hampshire female.

good egg-laying breed, it is not a good meat producer and is rather difficult to confine in outside pens.

When eggs for hatching are desired, only the most vigorous and best grown birds should be used for breeding. Yearling hens usually make better breeders than pullets,



5300-C

FIGURE 5.—A Single-Comb White Leghorn female. This breed is good for egg production, but the hens are more apt to fly over the fence than those of heavier breeds.

but cockerels generally give better fertility than yearling or 2-year-old birds. In the light breeds, such as the Leghorns, one male is usually

mated to 15 to 20 females. In the general-purpose breeds, one male should be provided for every 12 to 15 females.

## INCUBATION AND BROODING

Both the natural and the artificial methods of hatching and brooding chicks are used in small flocks. For a few chicks, the natural method is easier and less expensive. The sale of day-old chicks from hatcheries has largely done away with small incubators for backyard flocks. The Department's Farmers' Bulletin 1538, "Incubation and Brooding of Chickens," discusses this subject more fully.

### NATURAL INCUBATION AND BROODING

The broody hen is usually set on a straw nest in a box about 18 inches square. Place the nest in a spot where the hen will not be disturbed and put 13 to 15 fertile eggs in the nest. Sitting hens should be well fed on grain and mash.

About 24 hours after the chicks are hatched, take them from the nest and put them in a brood coop with the hen (fig. 6). If the weather is cold, 12 chicks are enough for a hen; in warm weather a hen can care for 15 or more. A box coop makes a good brood coop, but the simplest type is the common A-shaped coop. Second-hand packing boxes may easily be made over for brood coops. A small covered run can be made for each coop and is especially desirable where there is danger of losses from cats, hawks, or other pests.

As the tendency to become broody is being bred out of many strains of chickens, natural incubation of eggs is not always successful. Hens occasionally leave the nest permanently or even abandon the chicks after they have hatched.

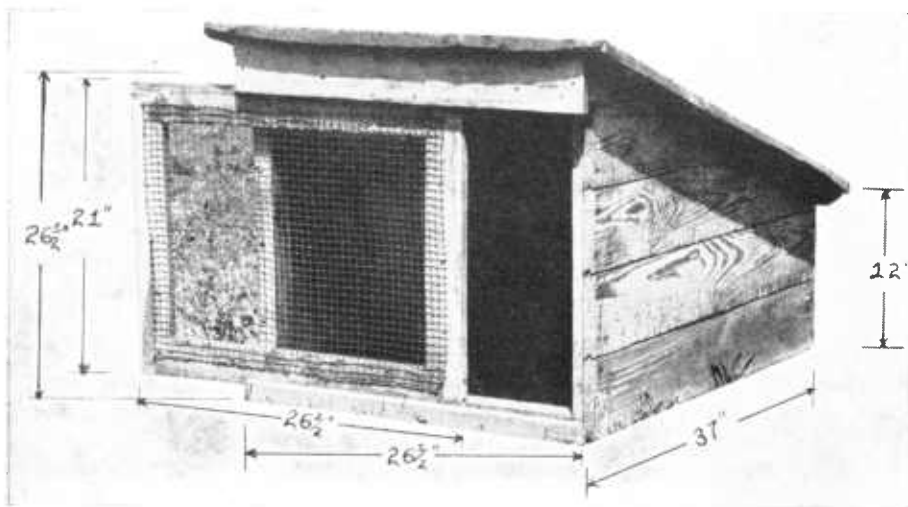


FIGURE 6.—A brood coop with sliding door, to house hen and chicks. The coop rests on a flat board floor for easy cleaning and rat protection.

## BUYING DAY-OLD CHICKS

Many small-flock owners buy day-old chicks to start or to replenish their flocks. Since the cost of the chick is such a small part of the value of the mature pullet, it pays to buy only good-quality chicks. Hatcheries which use breeding flocks of high-producing, rigidly selected stock sell chicks of the best quality. Most hatchery supply flocks are tested for pullorum disease and all reactors removed before any eggs are set. The most desirable flocks are those in which no reactors have been found for a number of years. Many hatcheries operate under an officially supervised program with prescribed standards for the control of pullorum disease.

The brooder (fig. 7) should be started at about 95° F. and should have reached that temperature before the chicks are received. This

temperature should be reduced about 3½° to 5° each week until the temperature is about 70°. It is important to train the chicks to use the hover for the first day or two.



10795-A

FIGURE 7.—Interior of a brooder house.

An enclosure of wire netting or corrugated paper will keep the chicks near the brooder. Chicks usually need artificial heat for 4 to 8 weeks, depending on the outside temperature.

## MANAGING CHICKS

The first rule for getting a good profit from poultry is to have high-quality birds that have been hatched early. The next is to keep them growing so that they will reach laying maturity before the beginning of cold weather.

Cleanliness is essential in raising chicks. Thoroughly clean and disinfect the brooder house, and cover the floor with dry litter before the chicks are put inside. Sheets of newspaper, changed daily, are often used to keep the chicks from eating too much of the fine litter for the first several days. A little feed may be sprinkled on the paper to encourage the chicks to learn to eat the first day.

Young chickens should be raised apart from old stock and kept on

clean land; otherwise the chicks are likely to contract diseases from contaminated soil or to become infested with worms. Very small bare yards soon become contaminated. Under such conditions the chickens may do better if they are raised in the house with an outside wire-floored sun porch so as to keep them entirely off the ground. Picking or cannibalism is likely to develop among confined chickens if they are crowded or are not given close attention.

Sexed pullet chicks can be obtained. Sexed lots will have few if any cockerels. Sometimes it may be more practical to buy started pullets in the summer, or well-matured pullets in the fall rather than to raise any baby chicks.

## FEEDING CHICKS

Most backyard poultry keepers find it practical to use commercially mixed feeds rather than to mix their own. Many commercial

mixed feeds are of excellent quality. For those persons who prefer a home mix the following formulas are suggested:

CHICK DIETS <sup>1</sup>

Ingredient	STARTING DIET	GROWING DIETS	
	All-mash complete diet	All-mash complete diet	Mash to be fed with grain
	<i>Parts by weight</i>	<i>Parts by weight</i>	<i>Parts by weight</i>
Ground yellow corn.....	41. 7	57. 9	34. 3
Ground wheat.....	10. 0	10. 0	10. 0
Alfalfa meal.....	5. 0	5. 0	5. 0
Soybean meal.....	33. 0	21. 0	37. 0
Fish meal.....	2. 0	-----	-----
Riboflavin supplement.....	5. 0	2. 0	6. 0
Steamed bonemeal.....	1. 7	2. 5	4. 5
Ground limestone.....	1. 0	1. 0	2. 0
Salt mixture.....	. 5	. 5	1. 0
Cod liver oil.....	. 1	. 1	. 2
Vitamin B <sub>12</sub> supplement.....	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )
Total.....	100. 0	100. 0	100. 0

<sup>1</sup> Adapted from Circular 788, Nutritive Requirements and Feed Formulas for Chickens.

<sup>2</sup> Enough vitamin B<sub>12</sub> supplement should be used to supply 7 micrograms of B<sub>12</sub> per pound of feed.

The salt mixture listed in these diets should consist of 100 parts by weight of common salt and 1.7 parts of anhydrous manganous sulfate (or 2.5 parts of manganous sulfate tetrahydrate). The use of this salt mixture is optional.

Feed the chicks a starting diet for the first 6 to 8 weeks, and then feed a growing diet. See formulas under Chick Diets. The growing diet may be the all-mash, or it may

be the other mash together with grain. Feed only a small amount of cracked grain at first, and increase the quantity gradually. If a combination of mash and grain is to be fed, do not use the all-mash formula, as grain added to the all-mash would result in a product inadequate in protein.

A few weeks before the chickens are ready to lay, change the feed slowly to an all-mash laying diet.

## FEEDING HENS

Commercial mixed feeds are commonly used for feeding most small flocks. Most commercial mashes contain only part of the calcium that is required, so it is necessary

to supply additional calcium in the form of oystershell or limestone. Follow the instructions of the manufacturer.

Diets for laying and breeding



hens are given below. The all-mash diets are fed without any other grain. The mash to be fed

with grain is used with a mixture of several grains, or with whole or cracked corn.

## DIETS FOR HENS

Ingredient	LAYING DIETS		BREEDING DIETS	
	All-mash complete diet	Mash to be fed with grain	All-mash complete diet	Mash to be fed with grain
	<i>Parts by weight</i>	<i>Parts by weight</i>	<i>Parts by weight</i>	<i>Parts by weight</i>
Ground yellow corn-----	25.0	20.5	43.5	16.1
Ground wheat-----	20.2			
Wheat bran-----	10.0	10.0	10.0	10.0
Wheat middlings-----	15.0	15.0	15.0	15.0
Soybean meal-----	16.0	36.0	13.0	30.0
Alfalfa meal-----	5.0	5.0	5.0	5.0
Fish meal-----			2.0	4.0
Ground limestone-----	4.0	3.0	3.5	3.0
Steamed bonemeal-----	2.0	5.0	2.2	4.4
Salt mixture-----	.5	1.0	.5	1.0
Riboflavin supplement-----	2.0	4.0	5.0	11.0
Cod-liver oil-----	.3	.5	.3	.5
Vitamin B <sub>12</sub> supplement-----			(1)	(1)
Total-----	100.0	100.0	100.0	100.0

<sup>1</sup> Enough vitamin B<sub>12</sub> supplement should be used to supply 7 micrograms of B<sub>12</sub> per pound of feed.

Use the same salt mixture as suggested for the chick diets. These mashies contain all the calcium needed, and the hens will not need additional oystershell and limestone grit.

The mash-and-grain feeding is the most common. The grain may be fed in the litter, but it is more sanitary to feed it in hoppers. In twice-a-day feeding, about one-third of the grain is usually fed in the morning and the remainder late in the afternoon. Dry mash is fed in a hopper and is kept before the birds all the time. Plenty of space for feeding and drinking is essential.

Feed costs may be reduced by

feeding waste products from the kitchen and garden. Meat scraps, and peelings from various vegetables as well as their green tops, furnish excellent supplements to the ration. However, discretion should be exercised in the choice of wastes fed. Onions, fruit peels, leftover salads saturated with salad dressing, and certain other materials may impart undesirable flavors to eggs and poultry meat. Potato peels should be cooked before being fed to chickens. Wastes from the kitchen and garden should not replace poultry mashies and should be fed only so that the flock will clean up the wastes in 5 or 10 minutes.

## RAISING BANTAMS

Bantams require only small coops, consume much less feed than larger birds, but lay fewer and

much smaller eggs. Their small size appeals to many, and they are frequently kept for ornamental

purposes and as children's pets. The standard breeds of bantams are miniatures of the larger breeds. Adult bantams consume about 20 to 25 pounds of feed a year. Their eggs vary in size, weighing from about 11 to 16 ounces per dozen.

A house for bantams may be small enough to be picked up by handles and moved, together with the attached run, to fresh ground. Such a house may be 3 feet 10 inches wide by 4 feet 6 inches deep; 5 feet 6 inches high in front and 4 feet 5

inches high in the rear. The attached covered run is the same width as the house and is 5 feet deep. The front of the run is 2 feet 8 inches high, and where attached to the house, 3 feet high. The house and run will accommodate from 6 to 10 bantam hens and a male bird. Wire-floored sun porches may be used to advantage both for young bantams and for mature birds. Wire, gravel, or cinder floors in outside yards aid in keeping them sanitary.

## HOUSES FOR LAYING STOCK

The poultry house for the laying flock should be comfortable, light, and dry, and have a good supply of fresh air but be free from drafts. The building should be on a well-drained site. It should have a southern or southeastern exposure, and the number of windows and

openings and the amount of ventilation should be adapted to the climate. A large back window will provide adequate cross ventilation on hot days and in climates where extreme hot weather prevails. Insulation, at least of the roof, will do much to make the house more com-



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FIGURE 8.—A light, airy laying house with a convenient screened run attached.

fortable both in winter and summer. Frames covered with glass substitutes are used to close part or all of the openings during the winter. The open front and certain of the glass substitutes admit ultraviolet rays of the sun, which are excluded by ordinary glass windows. To admit these desirable sun rays glass substitutes must be kept clean and free from dust.

The size of the flock, naturally, will determine the size of the house. A safe working rule is to allow about 4 square feet of floor space per bird. The lighter birds, such as Leghorns, usually need a little less floor space than such breeds as the Plymouth Rocks, Rhode Island Reds, or Wyandottes. However, houses may be rather crowded without risk if the birds are allowed to run in an outside yard (fig. 8). It



23582-B

FIGURE 9.—A good type of simple shed-roof house for a moderate-sized poultry flock in the suburbs. The dimensions are 10 feet by 14 feet. Also suitable for laying house.

cannot be said that any particular type of poultry house is the best, since local conditions determine to a large degree the type that will give good results. The poultry departments of the State colleges of agriculture are prepared to make recommendations as to the most suitable type of house for their States.

Practically, either a square or rectangular house is more satisfactory than houses of other shapes. It should be about 6 feet high in

front and at least  $4\frac{1}{2}$  to 5 feet at the back. The depth of the house is a matter of importance because the deeper the house the less danger that drafts will reach the birds roosting at the rear. A depth of at least 10 feet is desirable from the standpoint of both winter and summer comfort. Ordinarily a shed-roof type of house is the most economical to build (fig. 9). Most roofs have a pitch of one-fourth or less, but shingle roofs should have a pitch of at least one-third.

## FLOOR

All things considered, concrete makes the most satisfactory floor since it is sanitary and more durable than any other kind. Board floors are also satisfactory and have the advantage over a concrete floor in that the house can be moved more easily. A board floor is preferable to an earth floor which is difficult to clean thoroughly. If a board floor is used it should be at least 8 inches off the ground. This is to prevent dampness which causes the floor to rot. The raised floor also discourages rats from living under the house. Cover the floor of the poultry house with 2 or 3 inches of litter—clean wheat or rye straw is satisfactory. As soon as the litter gets damp and dirty it should be removed and replaced with new litter.

A newer system of "deep litter" is now often used with good results in the laying house. Start the litter in the early fall, add to it and stir it frequently until the droppings become well mixed with the litter. When the material becomes 6 or 8 inches deep it may be considered complete and, other than an occasional stirring, it should need little subsequent attention. This litter is not changed until the new pullets are housed the following year. When larger numbers of chickens are kept this method can

save considerable labor and litter material. Sawdust, shavings, or commercial litter are commonly used for producing built-up litter.

## INTERIOR FIXTURES

The roosts should be located at the rear of the house, away from the front openings. They should be placed about  $2\frac{1}{2}$  feet above the floor and should be from 13 to 15 inches apart on center. They are usually made of 2- by 4-inch or 2- by 2-inch pieces, with the corners slightly rounded.

Leghorns require about 8 inches of perch space per bird; Plymouth Rocks and similar breeds, 10 inches. The droppings board should be about 6 or 8 inches beneath the roosts and should be 20 inches wide for one roost and about 34 inches wide for two. The board may be made of matched lumber and should have a smooth surface comparatively free from cracks. It should be cleaned at least twice a week. However, if a heavy wire netting is fastened just under the roost poles the birds will not be able to walk in the droppings. Therefore, the eggs will be cleaner and it will not be necessary to remove the manure for several weeks. The manure may be used as fertilizer for the flower or vegetable garden or put on the lawn, but should not be used on ground over which the chickens run because the chickens may contract infections in this way.

A droppings pit is often used instead of droppings boards. The pit is covered with heavy wire netting to prevent the birds from getting into it. When a pit is used, the droppings are removed after 1 to 3 months. Flies and offensive odors can be reduced by periodical

spraying with DDT and spreading hydrated lime over the droppings.

Nests should be 12 to 14 inches square and may be placed on the end walls or on partitions. They should be high enough so that the hens can get under them. Nests with back and ends of wire are better ventilated. Cheap nests may be made of empty orange boxes or egg crates. Nests are usually arranged in tiers. Provide a nest for about every four or five hens in the flock. A broody coop made with a slat or wire bottom is needed in which to confine broody hens in the spring to break up their desire to sit. This coop is also useful at other times for any birds which may need special attention.

An open hopper in the laying house from which the hens can help themselves to dry mash at any time is necessary for best results in egg production. One of these is shown in figure 3, and this as well as other types can be bought, or a home-made hopper can be made. Two important features of such a hopper are that it makes the dry mash easily accessible and at the same time prevents waste of feed. Hoppers may be used also for supplying grit and oystershell to the hens in the laying house, provided these minerals are not mixed with the feed.

Clean water is important in the hen's ration. A good-sized galvanized-iron water pail or pan is all that is necessary to hold the water supply, but it should be located about 18 inches above the floor, to keep straw and dirt from getting into the water. The pail should be easy to empty and clean and should be protected so that the birds cannot get their feet into the water.

## YARDS FOR LAYING STOCK

Laying hens may be kept indoors the year round, but some outside

yard space is preferable. Hens confined to the house will lay well

and keep healthy provided they have comfortable, well-ventilated houses and are fed suitable rations containing cod-liver oil or some other source of vitamin D. A wire-covered outside yard or sun porch is advised. This should be about the same size as the house, with a wire, cinder, or concrete floor which keeps the chickens off the soil and is easily cleaned. For larger yards a 5- or 6-foot fence is needed, and it may be necessary to clip one wing of birds of the light breeds to keep them from flying out. Some poultry keepers either alternate their

chicken yards with the garden plot each year or use the garden for the chickens during part of the year.

One way to prevent the soil from becoming contaminated is to provide a double yard for the laying stock. While a crop of green feed or grass is growing on one yard, the other is used for the chickens. Another plan is to locate the yard on a slope to assure good drainage and no puddles. Heavy showers would even wash off and cleanse the yard appreciably. Put lime on the soil occasionally.

## BATTERIES FOR CHICKS

The keeping of chicks in batteries is a relatively new practice. This method is used mainly by hatcherymen and broiler producers and is particularly adapted to holding chicks for 1 to 2 weeks and raising broilers in complete confinement. Batteries are used considerably for brooding chicks and to a limited extent for keeping laying hens.

Successful battery brooding requires regular care and good management. As the chicks are closely confined they are absolutely dependent on the operator. Unless conditions are kept just right, difficulties such as picking, overcrowding, and leg weakness are likely to develop.

Feeding is extremely important in battery management as the chicks receive no sunlight and have no chance to pick up other feeds. Keep an all-mash ration before the chicks all the time. Fresh green feed is not ordinarily supplied, but alfalfa-leaf meal is generally included in the mash. Cod-liver oil or other sources of vitamin D must be included in the ration. This oil prevents the leg weakness caused by lack of vitamin D and sunlight.

The all-mash starting and growing diets previously given are recommended for feeding chicks in battery brooders. Chicks for broilers are fed on the same ration, except that the cod-liver oil is omitted the last 2 weeks before marketing. Additional diets suitable for feeding poultry in batteries are given in Circular 788.

Chicks in battery brooders pick one another and cause great loss. This habit is difficult to control. Ruby-colored light in the brooder or in the room either from colored bulbs or from stained windows, darkening the brooder room, "tip-ping" the upper beak, and the use of salves and mechanical devices are some of the methods recommended for overcoming picking. Another control method is to increase the salt in the diet for 2 or 3 days, adding 2 percent of salt to an all-mash diet or 4 percent to the mash in a grain and mash diet. Overcrowding the chickens aggravates this habit. Because chicks grow rapidly there is a tendency to permit the batteries to become crowded. Good ventilation is essential for chicks in batteries.

## CAGES FOR LAYING HENS

Cages or batteries are used to a limited extent for laying hens (fig. 10). They enable the poultry-

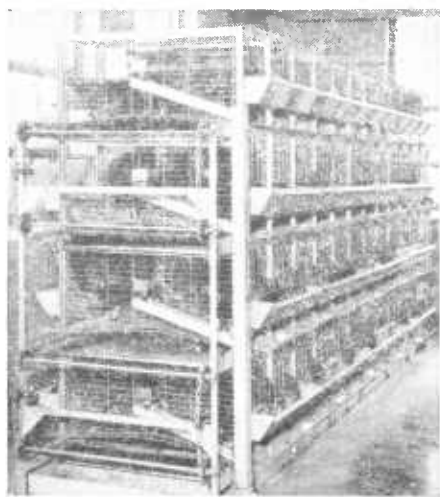


FIGURE 10.—Cage equipment for layers.  
Note sloping wire floor which causes eggs to roll to the tray at the front.

man to know the daily egg production of each hen, making it easy to cull the poor layers as soon as they cease to be profitable. Growing pullets should be available for re-

placements in order to utilize the cage equipment efficiently. Pullets must have good vigor and vitality to do well in cages. With good equipment and proper management, hens in cages should lay approximately the same number of eggs as hens kept on the floor in well-built hen houses. Keeping each hen in a separate compartment in the batteries prevents cannibalism, which is often the cause of considerable mortality when laying flocks are kept confined.

The cage method requires considerable equipment, and the per hen investment is much greater than in the single-wall, unheated laying houses.

An all-mash diet is recommended for feeding laying hens in cages. Mash is kept before the hens all the time, and feeds which are coarsely ground are preferred. Some growers feed pellets.

The use of the complete battery system, including the raising of pullets in batteries to laying age, is limited. However, this method is now becoming more popular in the southern climates and may continue to gain.

## USE OF ARTIFICIAL LIGHT

Many owners of smaller flocks are using artificial lights in the laying houses to give the pullets a 12- to 14-hour day during the winter months. The use of artificial lights not only increases the proportion of eggs laid during the fall and winter months when egg prices are highest but also helps to keep the birds in better condition. Usually the lights are used on the pullets only from about October 1 through February

or March. Forty-watt electric lamps equipped with 16-inch reflectors are placed from 5 to 6 feet above the floor in the pens (fig. 3).

Lights may be used in the morning or both morning and evening. Automatic devices are generally used to control the light. With evening lights some method of dimming the light is necessary to allow the hens to go onto the roosts before the lights are shut off completely.

## SELECTING TO IMPROVE PRODUCTION

Egg production of the flock may be improved by selection of good hens, and by culling the poor layers.

Choose pullets that will (1) mature early, (2) lay at a high rate and, (3) lay persistently to the end of



FIGURE 11.—Appearance of comb and wattles of a hen in laying condition (left) and one not in laying condition (right). The hen at the left laid 205 eggs in a year; the one at the right, only 22.

the laying year, with little or no broodiness. Production during the

second laying year is usually 20 percent less than during the first year, and it usually is not profitable to keep hens for egg production more than 2 years.

The best time to cull pullet or hen flocks is in the late summer or early fall, because at this season it is easy to distinguish the good from the poor layers. The most persistent layers will molt late and their beaks and shanks will be thoroughly bleached of their original yellow color. The appearance of the comb and wattles (fig. 11) and the condition of the pubic bones, abdomen, and vent are good indications of laying condition. A practical way to identify poor birds is to mark them with colored leg bands.

## CONTROLLING DISEASES, LICE, AND MITES

Remove sick birds from the flock to prevent further loss. In case of an outbreak of disease, consult a veterinarian or communicate with your State agricultural college, giving a complete description of the symptoms and the conditions under which the flock is kept. After removing the sick birds from the flock, thoroughly clean and disinfect the poultry house and all feeding and watering equipment. If treatment of sick birds is advisable, keep them confined while being treated. In many cases, in an outbreak of disease, it is better to kill the affected birds and burn or bury them deeply. Farmers' Bulletin 1652 describes diseases of poultry and suggests methods of prevention and of treatment.

Sanitation is important in keeping down diseases and parasites in poultry flocks. Some poultrymen lime their soil annually. Keep the poultry house clean and the floor well covered with clean, dry litter, except where the deep litter system is used. Provide comfortable, well-ventilated, and well-lighted houses, free from drafts and dampness.

Scrape the floor of the poultry house, and clean and disinfect the house thoroughly at least once a year. Mites may be eradicated by using a suitable insecticide, such as anthracene oil, carbolineum, or creosote, on the roosts, roost supports, and nest boxes. This may be painted on with a brush, or it may be diluted with an equal quantity of kerosene and used as a spray. Crude petroleum is cheaper but less effective. Examine the under part of the roosts for mites every week or two in warm weather and less frequently in cold weather. Examine the birds, and if lice are present, treat all the birds with a good insecticide. One of the best of these is commercial sodium fluoride. Rub a small pinch of it into the feathers of the head, neck, back, breast, and thigh, below each wing, at the tail head, and under the vent. A simpler treatment for lice is to apply a thin ribbon of a 40-percent solution of nicotine sulfate on the top of the roosts just before the birds go onto the roosts. Lindane as a spray or as a roost paint is also used to control lice.

## RECORD KEEPING

Owners of small flocks usually like to keep records of returns and expenses of their poultry flocks. The most essential records are the daily egg production, a cash account of receipts and expenses, and a yearly inventory. Estimated

values of poultry meat and eggs used in the household should be included in the receipts. For further information see Farmers' Bulletin No. 1614, "Business Records for Poultry Keepers."

## FINISHING CHICKENS FOR THE TABLE

If there is a special market for dressed fowls it may pay the grower to feed a fattening ration to the birds selected for marketing. Ordinarily small-flock owners gain little by attempting to finish or fatten their birds for market, especially if the flock is in good condition as a result of well-balanced diets. However, liberal feeding of a suitable diet can put considerable weight on healthy chickens that are not in good flesh.

Young cockerels being finished for broilers need more protein than older birds because the cockerels are still growing. They will make the best gains if placed in small pens and fed two or three times a day on a mash moistened to a crumbly consistency with milk or buttermilk. The first few feedings should be relatively light, but beginning with the last feeding on the second day the chickens may be given all the wet mash they will eat in half an hour. Broilers of the heavy breeds weighing from  $1\frac{1}{2}$  to 2 pounds at the beginning of the finishing process require approximately  $3\frac{1}{4}$  to  $4\frac{1}{2}$  pounds of feed for each pound of gain. If the chickens are of the Leghorn breed, they may require approximately  $4\frac{1}{2}$  to  $5\frac{1}{2}$  pounds of feed per pound of gain. Roosters weighing 4 to 5 pounds require approximately  $4\frac{1}{2}$  to 7 pounds of feed per pound of gain and capons and hens usually require 8 to 12 pounds of feed per pound of gain. Thus with knowledge of current feed

costs and market prices the producer may calculate the cost of adding weight to his birds and decide whether it promises to be profitable.

The appearance and condition of dressed poultry depend greatly on the skill and care used in the killing, packing, and cooling. It is best to dress chickens when the weather is cool, when the birds are to be used soon, or when they can reach market within a few hours. Feed no solid food in the 12 hours before killing, but supply plenty of water.

Market fowls may be either scalded and picked or dry-picked after being killed. Scalding is the easier method. Dry picking is more difficult and is seldom used, but it results in a more attractive fowl, which may sell more readily on some markets. The dry-picking method also requires a special method of killing the bird by cutting the jugular vein in the back of the mouth and sticking the knife blade into the brain through the roof of the mouth.

Water temperatures used by poultrymen range from  $128^{\circ}$  to as high as  $190^{\circ}$  F. Chickens and turkeys are often "wet-picked" after being in water at a temperature of about  $130^{\circ}$  for approximately 30 to 35 seconds for young birds and from 40 to 50 seconds for adult birds. The higher temperatures should be used mostly with fowls and with extreme care to prevent serious damage to the skin appearance. If



high scalding temperatures are used, the birds cannot be chilled in air or they will discolor. Use crushed ice

for chilling and packing, or place the birds in a moisture proof wrap after chilling.

## HOME METHODS OF PRESERVING EGGS

During the spring and early summer, when eggs are abundant and the price is reasonably low, they may be preserved for use in winter when they are few in number and expensive. Fresh eggs properly preserved may be kept for 6 to 9 months. Eggs laid during March, April, and May usually are of high quality when laid, and keep better than eggs laid later in the season.

Only fresh eggs with sound, strong shells should be preserved, and any eggs which are soiled, cracked, or even slightly checked should not be used. Dipping eggs in mineral oil is a simple, inexpensive way to preserve them for several months. Small quantities of light-grade oil may be obtained from the drugstore. Warm the oil to thin it but have it no hotter than the hand can stand with comfort. Eggs keep best if they are oiled between 12 and 24 hours after they are laid. Put several eggs in a wire basket, dip the basket into the oil, drain, then pack the oiled eggs in clean baskets, crates, cases, or cartons, and store in a cool cellar or household refrigerator. Oiled eggs may have cloudy whites when broken-out for use. This cloudiness does not harm their usefulness in any way and should be looked upon as an index of proper preservation. Eggs poorly covered

with oil or oiled too late will not have cloudy whites.

Water glass is sometimes used for preserving eggs for home use. For 14 to 15 dozen medium-sized eggs, use 1 quart of water glass to 9 quarts of water that has been boiled and cooled. Measure the water into a 5-gallon crock or galvanized can which has been thoroughly cleaned and scalded. Add the water glass and stir the mixture thoroughly. Place the eggs in the water glass solution, and be careful to have at least 1 inch of the solution covering the eggs at all times. If there are not enough eggs on hand when the solution is first made, more eggs may be added from time to time. Keep the solution containing the preserved eggs in a cool, dry place. The container should be tightly covered to prevent evaporation.

Eggs may also be preserved in limewater obtained by slaking 2 pounds of lime in water and mixing the clear solution with 5 gallons of boiled water. Do not use galvanized containers for the limewater solution. Remove the eggs from the preservative only as needed for immediate use. Wash off the coating which covers the shell. When eggs preserved in water glass are to be boiled, make a small hole with a pin at the large end of the shell to allow the air in the egg to escape.

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